TRAFFIC IMPACT ANALYSIS GUIDELINES FOR LOCAL TRANSPORTATION ANALYSIS AND VEHICLE MILES TRAVELED ANALYSIS

CITY OF BANNING

RIVERSIDE COUNTY, CALIFORNIA

September 2021

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CITY OF BANNING

RIVERSIDE COUNTY, CALIFORNIA

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1.0 INTRODUCTION

Senate Bill (SB) 743, signed in 2013 and effective statewide since July 1, 2020, has changed the way transportation impacts are analyzed in the California Environmental Quality Act (CEQA) process. Vehicle miles traveled (VMT) replaces auto delay and level of service (LOS) as the metric for transportation impact determination. However, LOS still remains the metric for determining consistency with a jurisdiction's General Plan requirements.

Previously, the City used to require projects to follow the County of Riverside's Traffic Impact Analysis (TIA) guidelines for preparation of traffic studies within the City. The County's guidelines were based on LOS as the criterion for determining CEQA transportation impacts. This document has been prepared to comply with the updated CEQA Guidelines for determining transportation impacts. As such, this document provides separate guidelines for LOS-based Local Transportation Analysis (LTA) (pursuant to the City's General Plan consistency requirements) and VMT analysis (pursuant to CEQA requirements).

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2.0 NEED FOR TRAFFIC IMPACT ANALYSIS

A Traffic Impact Analysis (TIA) may be required for CEQA purposes, to evaluate General Plan consistency, or both. Therefore, a TIA has two components: an LTA for General Plan consistency purposes, and a VMT analysis to meet CEQA requirements. The following criteria should be used to determine whether an LTA or a VMT analysis or both are required for a project:

2.1 NEED FOR A LOCAL TRANSPORTATION ANALYSIS

An LTA will not be required for projects having certain types of activities (for example, local-serving projects) or for those with a limited trip generation. For the latter, the thresholds for determining the type of LTA report are as follows:

- If a project is forecast to generate fewer than 50 peak hour trips, then an LTA will not be required and a trip generation memorandum will be considered sufficient unless City staff has specific concerns about traffic operations at the project driveways and adjacent intersections.
- If a project is forecast to generate between 50 and 100 peak hour trips, then a focused LTA will be required, where the analyst will only need to analyze the project driveways and intersections adjacent to the project site.
- If a project is forecast to generate more than 100 trips, then a full LTA will be required.

Additionally, the following projects are also exempt from an LTA:

  - Plot plan and uses cases for projects of one acre or less.
  - Preschools, local-serving elementary schools, and local-serving middle schools.
  - Local-serving churches, lodges, community centers, neighborhood parks, and community parks.
  - Congregate care facilities that contain significant special services, such as medical facilities, dining facilities, recreation facilities, and support retail services.

However, the City reserves the right to require an applicant to prepare additional LOS-based traffic analysis under the following circumstances:

- Presence of an existing or potential safety problem.
- Location of the project in an environmentally or otherwise sensitive area, or in an area that is likely to generate public controversy.
- Presence of a nearby substandard intersection or street.
- Need for a focused study for access/operational issues.
- Request from an affected agency, such as the California Department of Transportation (Caltrans) or an adjacent jurisdiction (if the request is deemed reasonable and appropriate).

2.2 NEED FOR A VMT ANALYSIS

Based on the substantial evidence provided in the *City of Banning VMT Analysis Implementation Guidelines* (VMT Analysis Guide), dated September 2021, certain projects may be screened out from a detailed VMT analysis. These criteria are explained in detail in Section 5.1. If the project is not screened out, a full VMT analysis will be required as described in Chapter 5.0.

2.3 SCOPING AGREEMENT PROCESS

The analyst should submit a completed "TIA Scoping Form" (Appendix A) to the City's Traffic Engineering Division for review and approval, prior to the preparation of draft LTA and VMT analysis documents. A detailed scoping letter should be submitted along with the TIA Scoping Form describing the analysis methodologies and assumptions as listed below. Appropriate fees, as outlined in the Scoping Form, must be paid for review purposes. The scoping agreement process will help in finalizing the following key issues before preparation of the documents:

- Determination of study area, including intersections and roadway segments to be analyzed;
- Project trip generation, distribution, and assignment;
- Different assumptions for the traffic analysis, such as cumulative projects to be considered for background traffic, ambient growth rate to be used for volume development under future conditions, or integration with the Riverside County Transportation Analysis Model (RIVCOM) or any other model approved by City staff;
- VMT screening criteria (if applicable), or proposed methodologies/assumptions for VMT analysis;
- For projects within one mile of a Caltrans facility, or any project that may add traffic on the Caltrans facility, the analyst must coordinate with Caltrans; and
- Coordination with adjacent jurisdictions (if required).

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3.0 LOCAL TRANSPORTATION ANALYSIS FOR GENERAL PLAN CONSISTENCY

Projects not screened out pursuant to the criteria in Section 2.1 will be required to complete an LTA for General Plan consistency following the guidelines stated below.

3.1 STUDY AREA

The minimum study area for the LTA should include any intersection of "Collector" or higher classification street, with another "Collector" or higher classification street at which the proposed project is anticipated to add 50 or more peak hour trips. Generally, the study area should not exceed a 5-mile radius from the project site, unless there is substantial evidence to justify a larger area. However, City staff may expand or contract the study area at its discretion.

3.2 ANALYSIS SCENARIOS

The traffic analysis should be performed for the following scenarios:

- Existing Conditions.
- Opening Year Conditions: This is defined as traffic conditions in the opening year of the project. The traffic volumes for this scenario should be developed by adding an ambient growth to the traffic volumes under existing conditions. The ambient growth should be determined based on discussion with City staff.
- Opening Year plus Project Conditions: This is defined as the opening year without project conditions plus the project traffic.
- Cumulative Conditions: This is defined as opening year conditions plus traffic generated from approved and pending development projects in the study area. Information about such development projects should be obtained from City staff and adjacent jurisdictions.
- Cumulative plus Project Conditions: This is defined as the cumulative conditions plus the project traffic.

For projects which include a General Plan Amendment (GPA), Change of Zone (COZ), a Specific Plan, or anything else which increases traffic beyond what is approved in the City's General Plan, a horizon year analysis will be required. The following additional scenarios will be required in such cases:

- Horizon Year Conditions: This is defined as traffic conditions in the horizon year (this typically coincides with the horizon year in RIVCOM). The traffic volumes for this scenario should be developed by using model volumes obtained from RIVCOM or any other model approved by City staff and by applying appropriate post-processing methodologies. However, it is to be verified if all approved and pending development projects that may add project traffic to the study area are included in the model.
- Horizon Year plus Project Conditions: This is defined as the horizon year conditions plus the project traffic.

Projects that have different phases may be evaluated in one of the following three ways:

- The analyst can identify which phase of the project will require an improvement based on the comparison of opening year without and with project conditions.
- The analyst can provide an assessment for opening year conditions for each phase of the project.
- For large phased projects, the project can initially be evaluated as a whole. However, subsequent traffic studies will be required to be completed for implementation of each proposed phase to ensure that improvements are implemented as required.

Applicants must consult City staff to determine the appropriate approach for analyzing a proposed project with multiple phases. The first option noted above is recommended for most phased projects.

3.3 DATA COLLECTION, PROJECT TRIP GENERATION, AND FORECASTING METHODOLOGIES

3.3.1 Traffic Counts

To analyze traffic operations under existing conditions, traffic counts should be collected in the study area using the following guidelines:

- Peak period turning movement counts should be collected at all study intersections, roadway segments (if required), and/or driveways, including bicycle and pedestrian counts at intersections with high non-automotive use. For intersections with high percentages of heavy vehicles, turning movement counts for heavy vehicles should be done separately.
- Average Daily Traffic (ADT) counts should be collected for roadway segments within the study area, as determined by City staff, along with vehicle classification counts in areas with a high percentage of heavy vehicle use.
- Traffic counts should not be used if more than one year old, unless approved by City staff.
- Traffic counts should not be collected on weeks that include a holiday and non-school session time periods, unless approved by City staff.
- Traffic data should not be collected between Thanksgiving and the first week of the New Year, unless approved by City staff.
- Traffic counts should be collected on Tuesdays, Wednesdays, or Thursdays.
- For congested traffic conditions, back-of-queue estimates by approach (and turning movement) may need to be conducted every 15 minutes as directed and required by City staff.
- Traffic counts should not be collected in an active construction work-zone.

Unless directed otherwise by City staff, counts should be collected during the following time periods presuming that the time period captures the beginning and end times of any congested condition.

- Morning (7.00 a.m. to 9.00 a.m.).
- Afternoon/evening (4.00 p.m. to 6.00 p.m.).

- Midday and "school-release" peak hours, as directed by City staff.
- Other peak or off-peak hours, weekends, or on special events, depending on the project location and land use, and as directed by City staff.

The count data should be included in the LTA appendices.

3.3.2 Trip Generation

The project's trip generation should be developed either by conducting local trip generation surveys for at least three similar project sites following the methodology contained in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook* or by using trip generation rates from the latest edition of the ITE *Trip Generation Manual*. Trip generation for high truck-generating uses such as high-cube warehouses or light industrial facilities, shall be determined on a case-by-case basis based on discussion with City staff. For high-cube fulfillment center warehouse facilities, the trip generation rates provided in the ITE *Trip Generation Manual* may not be appropriate. Trip generation for such facilities may be developed using the rates provided in the *TUMF High-Cube Warehouse Trip Generation Study* prepared by WSP in January 2019 or other sources as recommended by City staff. Further, trip generation for Amazon and similar high-cube fulfillment center warehouse facilities may be developed using the trip generation rates provided in the Memorandum (Memo) in Appendix B or other sources as recommended by City staff. The rates in the Memo have been obtained by surveying similar facilities in the Inland Empire. The proposed project trip generation should be included in the scoping form for review and approval prior to study initiation.

Internal capture may be considered for mixed use developments. Internal trips should be determined using ITE's mixed-use trip generation method or using RIVCOM, as approved by City staff. Internal capture assumptions and calculations should be documented in the scoping form for review and approval prior to study initiation.

Pass-by and diverted trips may be considered for certain commercial projects. Pass-by trip rates and diverted trip rates may be obtained from the ITE *Trip Generation Handbook* or any other source approved by City staff. The trip generation should be documented in the scoping form for review and approval prior to study initiation.

For projects that are anticipated to generate a high volume of truck traffic, all truck trips should be converted into Passenger Car Equivalents (PCEs) or the analyst should apply appropriate heavy vehicle percentages in the capacity assessment. The following PCE conversion factors should be used:

- 2-Axle Trucks = 1.5 PCE.
- 3-Axle Trucks = 2.0 PCE.
- 4-and more Axle Trucks = 3.0 PCE.

For warehousing and high-cube warehousing projects, the split between passenger vehicles and trucks as well as the truck mix should be obtained based on the latest South Coast Air Quality Management District (SCAQMD) requirements.

3.3.3 Trip Distribution

The project's trip distribution should be based on the expected origin-destination patterns for the project's land uses. For projects screened out from a VMT analysis, the distribution may be developed manually or by using select zone assignments from RIVCOM. However, for projects requiring a VMT analysis, the regional distribution must be developed from RIVCOM using select zone runs in order to maintain consistency between the LOS and VMT analysis. Other data that may be used to help refine trip distribution patterns include the relative location of population, commercial, recreational and employment centers; existing peak hour link and turning movement volumes, ADT volumes, proximity to regional transportation corridors, and knowledge of local and regional traffic circulation. A preliminary trip distribution should be submitted in the scoping form for review and approval by the City staff. The trip distribution may be further refined and only finalized after consultation with City staff.

3.3.4 Horizon Year Traffic Volumes

The adopted RIVCOM should be used to develop traffic volume forecasts under horizon year conditions by applying the National Cooperative Highway Research Program (NCHRP) post-processing methodologies. Prior to running the model, the analyst should review the land use growth allocations in the study area to verify that the allocations are representative of the available land supply created by previously approved projects, the General Plan, and applicable zoning.

3.4 ANALYSIS METHODOLOGIES

3.4.1 Intersection LOS Analysis

The intersection LOS analysis should be performed using the most recent version of the *Highway Capacity Manual (HCM)*. The following parameters should be considered for the analysis:

- Saturation Flow Rate should be based on field measurements or 1,900 passenger cars/hour/lane.
- Heavy Vehicle Factor should be based on the PCE factors provided in Section 3.3.2; if classification of heavy vehicles cannot be obtained, then the Heavy Vehicle Factor should be determined based on discussion with City staff.
- Grade should be based on existing or proposed grade of the facility.
- Minimum green time should be based on existing signal timings (timing sheets may be provided by City staff or timings may be collected in the field) unless suggested HCM values would result in improved operations and should be implemented.
- Cycle lengths should be based on existing signal timings or as measured in the field.
- Lost time should be based on existing signal timings or consistent with the HCM requirements.

- Peak hour factors (PHFs) should be based on count data; future PHF should be 0.95. If existing PHF is higher than 0.95, it should be used for future analysis scenarios.
- Intersection analysis should be performed using a software that follows HCM methodologies; for locations where intersections are closely spaced or where queues build over space and time (extending to other upstream or downstream intersections), microsimulation software as approved by City staff should be used to accurately analyze the intersections as a system. This may require inclusion of freeway facilities.

In case of operational deficiencies, the following improvements should be considered:

- Exclusive left-turn lanes should be considered when peak hour left-turn volumes exceed 100 vehicles.
- Dual left-turn lanes should be considered when peak hour left-turn volumes exceed 300 vehicles.
- Protected left-turn phasing should be considered when the peak hour left-turn volumes exceed 200 vehicles or as determined by a traffic analysis showing excessive delays for the left-turn volumes.

3.4.2 Roadway Segment LOS Analysis

City staff may request a roadway segment analysis in addition to the intersection analysis. For projects consistent with the City's General Plan, the roadway segment analysis is already included as a part of the General Plan. However, for projects not consistent with the General Plan, a roadway segment analysis may be required to be performed. Roadway segments encompassed in the study area as determined by City staff should be included in the analysis. The analysis should be performed using roadway segment capacities provided in the table below:

Classification	Roadway Width (feet)	Number of Lanes	Maximum Two-Way Average Daily Traffic Volume		
			LOS C	LOS D	LOS E
Collector	60	2	12,800	14,400	16,000
Secondary Highway	80	4	24,000	27,000	30,000
Major Highway	100	4	30,400	34,200	38,000
Major Highway	110	4	30,400	34,200	38,000
Major Highway	134	6	47,200	53,100	59,000

Source: *City of Banning General Plan Circulation Element*

3.5 INTERSECTION GENERAL PLAN CONSISTENCY REQUIREMENTS

Operational improvements would be required at study intersections under either of the following conditions:

a) Addition of project traffic causes the intersection LOS to degrade from an acceptable LOS D or better to an unacceptable LOS E or F.

b) Addition of project traffic causes the peak hour delay to increase as follows:

- LOS A/B by 10 seconds;
- LOS C by 8 seconds;
- LOS D by 5 seconds;
- LOS E by 2 seconds; or
- LOS F by 1 second

If either of the above conditions is satisfied, improvements should be identified that achieve the following:

- Improving traffic operations to LOS D or better for case a, above.
- Improving traffic operations to offset the increase in delay for case b, above.

3.6 ROADWAY SEGMENT GENERAL PLAN CONSISTENCY REQUIREMENTS

Typically, traffic operations along a roadway segment are heavily influenced by the ability of the intersections to accommodate peak hour traffic volumes. Since the peak hour intersection analysis is performed in greater detail, it takes into account factors that affect roadway capacity. Roadway segment widening is only recommended if the peak hour intersection analysis indicates the need for additional through lanes and/or to meet the street cross-sections included in the Circulation Element of the City's General Plan, adjacent to the project boundary. As such, the criteria set forth in this section will only be applicable for projects that will be required to conduct a roadway segment analysis.

Consistent with the LOS standard in the City's General Plan, the following criteria have been identified to determine if traffic operations are acceptable or if roadway segment improvements are required. As such, operational improvements would be required at roadway segments under either of the following conditions:

a) Addition of project traffic causes the roadway segment LOS to degrade from an acceptable LOS D or better to an unacceptable LOS E or F.

b) The project adds traffic to a roadway segment that is forecast to operate without project traffic at an unacceptable LOS E or F.

If the above conditions are satisfied, improvements should be identified that achieve the following:

- Improving traffic operations to LOS D or better for case a, above.
- Adding capacity to improve traffic operations to pre-project LOS and volume-to-capacity (V/C) ratio for case b, above.

3.7 SITE ACCESS, SAFETY, AND OTHER ANALYSES

An LTA should analyze site access and safety around the project site and on adjacent streets. The guidelines for such analyses are as follows:

a) Intersection Sight Distance: All on-site intersections, project driveways, or streets to public roadways should provide adequate sight distance. The intersection sight distance should be evaluated using the latest edition of the Caltrans *Highway Design Manual (HDM)* or locally developed standards.

b) Driveway Length and Gated Entrance: Primary project driveways should have a throat of sufficient length to allow vehicles to enter the project area without causing subsequent vehicles to back up into the public street system.

c) Limit Driveway Impacts: Driveways and local street accesses on arterial streets should be limited to minimize the impacts on arterial streets. Driveways should be located to maintain a reasonable distance from an adjacent intersection and/or driveway. Whenever possible, driveways should be consolidated with adjacent properties.

d) Corner Clearance: A driveway should be located at a sufficient distance from a signalized intersection so that right-turn egress movements do not interfere with the right-turn queue at the intersection. Additionally, right-turn egress movements should be provided with sufficient distance to enter the left-turn pocket at the adjacent intersection.

e) Right-Turn Lanes at Driveways: If the project's peak hour right-turn traffic volume is 50 or more vehicles, a right-turn deceleration lane should be reviewed for appropriateness on all driveways accessing major arterial and secondary streets. The length of the right-turn lane should be determined based on the Caltrans HDM requirements. It should be sufficient to allow a vehicle traveling at the posted speed to decelerate before entering the driveway.

f) Adequacy of pedestrian facilities to/from the project site providing convenient and direct access for pedestrians.

g) Bicycle accessibility from bike routes near the project site.

h) Accessibility from adjacent transit stops to/from the project site providing convenient and direct access for transit users.

3.8 TRAFFIC SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis should be performed for unsignalized study intersections under opening year, cumulative, and horizon year conditions, where operational deficiencies are identified under plus project conditions. The traffic signal warrant analysis should be performed using the latest edition of the *California Manual on Uniform Traffic Control Devices (CAMUTCD).* The warrant analysis should be included in the LTA appendices.

To determine the location of a new traffic signal on an arterial street or approaching an arterial street, traffic progression and simulation analysis may be required using the Synchro, SimTraffic, or any equivalent software, as directed by City staff.

3.9 CEQA ASSESSMENT – ACTIVE TRANSPROTATION AND PUBLIC TRANSIT ANALYSIS

The LTA should include an analysis of potential project impacts on pedestrian, bicycle, and transit facilities. The analysis should be based on the following criterion:

- A significant impact will occur if the project conflicts with any adopted policies, plans, or programs related to pedestrian, bicycle, or transit facilities, or otherwise decreases the performance or safety of such facilities.

Therefore, the analysis should examine if the project is inconsistent with adopted policies, plans, or programs regarding active transportation or public transit facilities, or otherwise decreases the performance or safety of such facilities, and determine as to whether it has the potential to conflict with existing or proposed facilities supporting these travel modes.

3.10 IMPROVEMENTS FOR OPERATIONAL DEFICIENCIES

As part of the final acceptance of the LTA, City staff will review the proposed improvements and/or fair-share contributions necessary to improve the operational deficiencies caused by the proposed development. Improvements could consist of signalization of an intersection, signal timing improvements, lane restriping, or adding new lanes to study facilities. The project applicant can also revisit the project description in an effort to reduce the project impacts, if viable.

Improvements required for deficiencies solely created by the project may be included as part of the conditions of approval for the project. The project may be required to make a full contribution toward the implementation of these improvements. However, in cases where the project contributes to an existing or forecast deficiency, the project is required to pay only its fair-share contribution toward the proposed improvement. The fair-share amount should be calculated using the following formula: Fair share percentage = project trips ÷ (project trips + future development trips). If a project degrades operations during both peak hours, then the analysis should identify the peak hour that has the highest project burden for fair-share assessment purposes.

Payment for these improvements will be in addition to any other fees related to the existing fee programs (unless the recommended improvement is already included in an existing fee program (such as the Western Riverside Council of Governments' (WRCOG's) *Transportation Uniform Mitigation Fee (TUMF)* Program or the City's *Development Impact Fee (DIF)* Program). Fair-share contributions identified in the LTA and subsequently listed in the conditions of approval shall be required before a building permit is issued. Improvements identified in the LTA and subsequently listed in the conditions of approval must be completed prior to occupancy.

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4.0 LOCAL TRANSPORTATION ANALYSIS REPORT FORMAT

The recommended LTA report format is as follows:

1. **Executive Summary**
    a. Project description including location, project size, site land use and zoning, etc.
    b. Project trip generation summary.
    c. Summary of LOS results for each analysis scenario.
    d. Table summarizing operational deficiencies and recommended improvements.
2. **Introduction**
    a. Purpose of the LTA and study objective.
    b. Project location and vicinity map (Exhibit).
    c. Project size and description.
    d. Existing and proposed land use and zoning.
    e. Site plan for the proposed project (Exhibit).
    f. Proposed project opening year and analysis scenarios.
3. **LOS Analysis Methodology and Standards**
4. **Existing Conditions**
    a. Existing circulation network.
    b. Existing study intersection geometrics and traffic control (Exhibit).
    c. Existing peak hour turning movements and ADT (Exhibit).
    d. Existing intersection LOS (Table).
    e. Existing roadway segment LOS (Table).
    f. Existing bicycle facilities (Exhibit).
    g. Existing transit facilities (Exhibit).
    h. Existing pedestrian facilities (Exhibit).
5. **Project Traffic**
    a. Trip generation (Table).
    b. Trip distribution and assignment (Exhibit).
    c. Project peak hour turning movements and ADT (Exhibit).
6. **Opening Year Conditions**
    a. No Project analysis.

i. Committed (funded) roadway improvements.
ii. Opening year without project peak hour turning movements and ADT (Exhibit).
iii. Opening year without project intersection LOS (Table).
iv. Opening year without project roadway segment LOS (Table).

b. Plus project analysis.
i. Opening year plus project peak turning movements and ADT (Exhibit).
ii. Opening year plus project intersection LOS (Table).
iii. Opening year plus project roadway segment LOS (Table).
iv. Identification of intersection and roadway segment deficiencies.

7. Cumulative Conditions

a. No Project analysis.
i. Committed (funded) roadway improvements.
ii. Approved and pending projects trip generation. (Table)
iii. Approved and pending projects trip assignment (Exhibit).
iv. Cumulative conditions peak hour turning movements and ADT (Exhibit).
v. Cumulative conditions intersection LOS (Table).
vi. Cumulative conditions roadway segment LOS (Table).

b. Plus project analysis.
i. Cumulative plus project peak turning movement and ADT (Exhibit).
ii. Cumulative plus project intersection LOS (Table).
iii. Cumulative plus project roadway segment LOS (Table).
iv. Identification of intersection and roadway segment deficiencies.

8. Horizon Year Conditions (if Required)

a. No Project analysis.
i. Committed (funded) roadway improvements.
ii. Verification of whether approved and pending development projects are included in the travel demand forecasting model.
iii. Horizon year conditions peak hour turning movements and ADT (Exhibit).
iv. Horizon year conditions intersection LOS (Table).
v. Horizon year conditions roadway segment LOS (Table).

b. Plus project analysis.
i. Horizon year plus project peak turning movement and ADT (Exhibit).

ii. Horizon year plus project intersection LOS (Table).

iii. Horizon year plus project roadway segment LOS (Table).

iv. Identification of intersection and roadway segment deficiencies.

9. Traffic Signal Warrant Analysis

10. Site Access, Safety and Other Analyses

11. Safety and Operation Improvement Analysis

12. CEQA Assessment - Active Transportation and Public Transit Analysis

13. Improvements and Recommendations

a. Proposed improvements at intersections.

b. Proposed improvements at roadway segments.

c. Recommended Improvements categorized by whether they are included in fee programs or not. (Identify if these improvements are included in an adopted fee program).

d. Fair-share calculations (as required).

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5.0 CEQA ASSESSMENT – VMT ANALYSIS

Based on the substantial evidence provided in the City's *VMT Analysis Guide,* the following guidelines establish the framework for completing a CEQA-level VMT transportation analysis for proposed projects in the City. As such, the major steps involved in the CEQA VMT Analysis are as follows:

- Screening criteria under which projects are not required to submit a detailed VMT analysis.
- VMT analysis methodologies.
- Significance thresholds.
- Mitigation measures for significant and unavoidable impacts.

5.1 SCREENING CRITERIA

5.1.1 Land Development Projects

Certain conditions may exist that would presume that a proposed land development project has a less than significant VMT impact. Land development projects that have one or more of the following attributes may be presumed to have a less than significant VMT impact.

- The project is located within half mile of a Transit Priority Area or a High-Quality Transit Corridor and the project is consistent with the City's General Plan and zoning, has a floor-to-area ratio (FAR) greater than 0.75, provides parking less than or equal to the City's Municipal Code requirements, and does not replace any affordable residential units with moderate- or high-income residential units.
- Residential, office, industrial, or mixed-use projects located in areas with low VMT and which incorporate similar features (e.g., density, mix of uses, transit accessibility). The City of Banning VMT Screening Tool[2] can be used to determine whether a land use development project may be screened from a detailed VMT analysis. Proposed residential, office, industrial, or mixed-use projects, which are located within the low VMT zones identified after applying appropriate VMT analysis thresholds (provided later in this chapter) in the screening tool, and which do not require a GPA or COZ would be deemed to have less than significant impact.
- Local-serving retail space of less than 50,000 square feet.
- Redevelopment projects that result in equal or a net reduction in VMT. A net reduction in VMT would occur if the land use proposed by the project would generate less VMT than the existing land use.
- Local parks, daycare centers, student housing projects on or adjacent to a college campus, local-serving gas stations, banks, and K–12 public schools.
- Institutional/government and public service uses such as police stations, fire stations, community centers, and refuse stations.

2 City of Banning Screening Tool Link: Link Forthcoming.

- The project has 100 percent affordable housing units.
- Projects generating fewer than 500 daily vehicle trips (for projects requiring a GPA) and fewer than 1,000 daily vehicle trips (for projects that do not require a GPA). The following table summarizes the maximum sizes of different land use projects that can be exempt from a detailed VMT analysis based on the daily trip generation criteria:

Land Use	Size of Projects (Requiring a GPA)	Size of Projects (Not Requiring a GPA)
Single Family Residential	52 DU	105 DU
Low-Rise Multifamily Residential	68 DU	136 DU
Mid-Rise Multifamily Residential	91 DU	183 DU
Office	51.334 TSF	102.669 TSF
Light Industrial	100.806 TSF	201.612 TSF
Warehousing	287.356 TSF	574.712 TSF
High-Cube Transload and Short-Term Storage Warehouse	357.142 TSF	714.285 TSF
High-Cube Fulfillment Center	118.652 TSF	237.304 TSF

Notes: GPA = General Plan Amendment; DU = Dwelling Units; TSF = Thousand Square Feet
Project sizes have been determined based on trip generation rates obtained from the ITE *Trip Generation Manual* (10th Edition).

5.1.2 Transportation Projects

The primary attribute to consider with transportation projects is the potential to increase vehicle travel. Following is a series of transportation projects that would not likely lead to a substantial or measureable increase in vehicle travel, and would not require a detailed VMT analysis:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.
- Roadside safety devices or hardware such as median barriers or guardrails.
- Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile travel lanes.
- Addition of an auxiliary lane of less than 1 mile in length designed to improve roadway safety.
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left-, right-, and U-turn pockets, two-way left-turn lanes, or emergency breakdown lanes that are not utilized as through lanes.
- Addition of roadway capacity on local or collector streets, provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit.
- Conversion of existing general-purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel.

- Addition of a new lane that is permanently restricted to use only by transit vehicles.
- Reduction in the number of through lanes.
- Grade separation to separate vehicles from rail, transit, pedestrians, or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., high-occupancy vehicles [HOVs], high-occupancy toll [HOT] lane traffic, or trucks) from general vehicles.
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority features.
- Installation of traffic metering systems, detection systems, cameras, changeable message signs, and other electronics designed to optimize vehicle, bicycle, or pedestrian flow.
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow.
- Installation of roundabouts or traffic circles.
- Installation or reconfiguration of traffic calming devices.
- Adoption of, or increase in tolls.
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase.
- Initiation of a new transit service.
- Conversion of streets from one-way to two-way operation with no net increase in the number of traffic lanes.
- Removal or relocation of off-street or on-street parking spaces.
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs).
- Addition of traffic wayfinding signage.
- Rehabilitation and maintenance projects that do not add motor vehicle capacity.
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way.
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel.
- Installation of publicly available alternative fuel/charging infrastructure.
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor.

Additionally, transit and active transportation projects generally reduce VMT and, therefore, are presumed to cause a less than significant impact on transportation. This criterion will apply to all passenger rail projects, bus and bus rapid-transit projects, and bicycle and pedestrian infrastructure projects.

5.2 VMT ANALYSIS METHODOLOGIES

5.2.1 Land Development Projects

For all projects that do not meet the Project Screening criteria, a detailed VMT impact analysis will be required. In outlining the project thresholds, the primary type of trips used in the VMT calculation for residential, office, and retail uses are defined as "home-based trips." The metric used is VMT per capita for residential projects, VMT per employee for office projects, and total VMT for retail projects. For other non-residential land uses, VMT per employee shall be used.

For mixed-use projects, the VMT should be evaluated separately for each component of the project using the most appropriate metric (VMT per capita, VMT per employee, or total VMT). The method of VMT analysis should be determined based on discussion with City staff. Credits for internal trip capture should be made.

For all projects that require a VMT analysis, use of RIVCOM is required unless the project includes a special land use that is difficult to analyze using a travel demand model. For the latter, the City may require a qualitative analysis or an analysis using empirical data as applicable to the project.

5.2.2 Transportation Projects

The City should be required to consider the effects of transportation projects on vehicle travel. Additional vehicle travel generated by transportation projects is referred to as "induced vehicle travel." Projects may be required to analyze the growth impacts under CEQA. However, if a proposed transportation project meets the screening criteria previously outlined, then a detailed VMT analysis will not be required. More details on VMT analysis for transportation projects is outlined in the *VMT Analysis Guide*.

Induced VMT or VMT attributable to the project needs to be calculated by evaluating no project and with project conditions under the horizon scenario using RIVCOM. A graphic representation of the VMT attributable to a transportation project is provided in Figure 6 of the *VMT Analysis Guide*.

5.2.3 Land Use Plans

Existing VMT per service population for the region and expected horizon year VMT per service population for the land use plan must be determined using RIVCOM. For land use plans with a specific land use, existing VMT per capita or VMT per employee, as appropriate, for the region and expected horizon year VMT per capita or VMT per employee should be determined using RIVCOM.

5.3 VMT THRESHOLDS

5.3.1 Land Development Projects

SB 743 follows the State goals set by the California Air Resources Board (CARB) in SB 375 for reducing greenhouse gas emissions by 15 percent below existing conditions by 2035. Accordingly, the City has determined the thresholds for land use development projects. The defined City VMT Thresholds are as follows:

- A proposed residential project exceeding a level of 15 percent below the existing WRCOG region average VMT per capita would indicate a significant VMT impact.
- A proposed office project exceeding 15 percent below the existing WRCOG region average VMT per employee would indicate a significant VMT impact.
- For retail projects, any net increase in total VMT for the WRCOG region with the addition of the proposed project would indicate a significant impact.
- For other land uses not specified in the Office of Planning and Research Technical Advisory (OPR TA), any net increase in VMT per employee would indicate a significant impact for uses consistent with the General Plan. For projects seeking a GPA, a project exceeding a level of 15 percent below the existing WRCOG region average VMT per employee would indicate a significant VMT impact.
- A mixed-use project exceeding the respective VMT thresholds for its different land use components..

As obtained from RIVCOM, the average VMT per capita in the WRCOG region is 23.2. The average VMT per employee is 26.3. The average VMT per service population is 32.8. Based on the goal of 15 percent below the WRCOG regional average, the City's thresholds would be:

- **Residential:** 19.7 VMT per capita.
- **Office:** 22.4 VMT per employee.
- **Retail:** No net change in total VMT.
- **Other Land Uses:** Any net increase in VMT per employee for uses consistent with the General Plan. For projects seeking a GPA, a project exceeding 22.4 VMT per employee would indicate a significant VMT impact.
- **Mixed-Use Projects:** Respective VMT thresholds for its different land use components.

5.3.2 Transportation Projects

Net increase in induced VMT will result in a significant impact for a proposed transportation project. The increase in VMT needs to be calculated by comparing the horizon year no-build VMT with the horizon year build VMT. Model adjustment may be necessary to account for induced growth and potential increases in future land use as a result of the capacity enhancing transportation project.

5.3.3 Land Use Plans

The existing VMT per service population for the region must be compared with the horizon year VMT per service population for the land use plan. For land use plans with a specific land use, existing VMT per capita or VMT per employee, as appropriate, for the region and expected horizon year VMT per capita or VMT per employee should be determined using RIVCOM. If there is a net increase in the metrics under horizon year conditions, then the project will have a significant impact.

5.4 DETAILED VMT FORECASTING METHODOLOGY

For non-screened VMT projects, RIVCOM should be used for VMT calculations. Land use projects should use the model base scenario for the VMT analysis. For transportation projects and land use plans, the model horizon year scenario must be used to calculate project VMT.

For all analyses purposes, the following steps summarize the recommended VMT forecasting methodology:

- A separate traffic analysis zone/zones (TAZs) must be created within the model to isolate project land uses and corresponding socioeconomic data (SED). In the case of the horizon year scenario, SED equivalent to the project land uses should be subtracted from the project location (parent) zone. The appropriate project SED should then be added to the newly created TAZ/TAZs for the project.
- Once the model runs are completed, VMT should be calculated using either the Production-Attraction (PA) or Origin-Destination (OD) trip matrices. For residential, office, and other projects where VMT per capita or VMT per employee are the suitable metrics, VMT should be calculated using PA trip matrices. For mixed-use projects and land use plans, where VMT per service population is the suitable metric, OD trip matrices should be used for VMT calculation. For retail projects, link-level VMT within the WRCOG region from the "no project" model run should be compared with "with project" model run.
- The following steps provide guidance on the calculations:
    - Use of PA matrices:
        - Keep the trip purposes, time of day periods (peak and off peak), and modes separate.
        - Use distance core from skim matrices by mode and time of day periods.
        - Convert person trips to vehicle trips using the auto occupancy factors.
        - Multiply the appropriate vehicle trip cores (by purpose) with distance cores from skim matrices by mode and time period.
        - Aggregate the vehicle VMT matrices by time period into daily VMT.
        - Calculate vehicle VMT by TAZ using the matrix marginal: Row sum for all homebased trip purposes for VMT per capita and Column sum for homebased work trip purpose for VMT per employee.
    - Use of OD matrices:
        - Combine AM and PM OD matrices into peak and MD and NT OD matrices into off-peak vehicle matrices retaining the vehicular modes.
        - Use distance matrix/core from peak and off-peak skim matrices by mode.
        - Multiply the vehicle OD matrices by mode with distance cores from skim matrices by mode for both peak and off-peak periods.
        - Aggregate the peak and off-peak VMT matrices into daily OD VMT.

- Calculate OD VMT by TAZ using the matrix marginal: Add both Row and Column sums for TAZs to calculate OD VMT per service population.

5.5 MITIGATION MEASURES

When the VMT analysis determines that a project has a significant impact, the applicant is required to identify feasible mitigation measures to avoid or substantially reduce the impact created by the project. The mitigation measures can be either strategies outlined in the *VMT Analysis Guide*, or others selected by the applicant. For the latter, the applicant needs to provide substantial evidence while identifying project-specific values. All mitigation measures and reduction percentages will be finalized based on discussions with City staff.

If the mitigation measures fully mitigate the project impact, the project is presumed to have an impact mitigated to a less than significant level. No further analysis is required. If the project's VMT impact cannot be fully mitigated, the City may (1) request the project be redesigned, relocated, or realigned to reduce the VMT impact, or (2) prepare a Statement of Overriding Considerations (SOC) for the transportation impacts associated with the project. All feasible mitigation measures must be assigned to and carried out by the project even if an SOC is prepared.

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6.0 VEHICLE MILES TRAVELED ANALYSIS REPORT FORMAT

The recommended VMT report format is as follows:

1. **Project Description**
2. **VMT Screening Methodology (if applicable)**
3. **Project VMT Analysis Methodology (for non-screened projects)**
4. **Project VMT Thresholds**
5. **Identification of VMT Impacts (if any)**
6. **Mitigation Measures (if required)**

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APPENDIX A

TIA SCOPING FORM

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TIA SCOPING FORM

This completed Scoping Form must be submitted to City staff for review before initiation of the TIA:

Project Identification:

Case Number:	
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	
Project Opening Year:	
Project Description:	

	Consultant	Developer
Name:		
Address:		
Telephone:		
Fax/Email:		

Trip Generation Information:

Source of Trip Generation Data: _____

Current General Plan Land Use	Proposed General Plan Land Use
_____	_____
Current Zoning	**Proposed Zoning**
_____	_____

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Peak Hour:						
PM Peak Hour:						

Trip Internalization: __ Yes __ No _____ Percentage (if Yes)

Pass-By Allowance: __ Yes __ No _____ Percentage (if Yes)

Diverted Trips Allowance: __ Yes __ No _____ Percentage (if Yes)

Potential Screening Checks:

Is your project screened from a Local Transportation Analysis (LTA), pursuant to the criteria in Section 2.1 of the guidelines?

__ Yes __ No

LTA Screening Justification:

_____
_____
_____
_____
_____
_____

Is your project screened from a VMT analysis, as per the criteria in Section 2.2 of the guidelines?

__ Yes __ No

VMT Screening Justification:

_____
_____
_____
_____
_____
_____

Level of Service Analysis Scoping:

Project Trip Distribution Percentages (Attach exhibit for detailed distribution):

North	South	East	West

- Attach list of Approved and Pending Projects that need to be considered (provided by City staff and adjacent jurisdictions)
- Attach list of study intersections/roadway segments
- Attach site plan
- Note other specific items to be addressed:
  a. Site access
  b. On-site circulation
  c. Parking
  d. Consistency with Plans supporting Bikes/Peds/Transit
  e. Other _____
- Date of Traffic Counts _____
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

Vehicle Miles Traveled Analysis Scoping:

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used: _____
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Any other specific issues to be addressed in the LTA or VMT analysis, apart from those stated in the Guidelines?

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APPENDIX B

TRIP GENERATION MEMORANDUM FOR AMAZON AND SIMILAR HIGH-CUBE FULFILLMENT CENTER WAREHOUSE FACILITIES

TRIP GENERATION MEMORANDUM FOR AMAZON AND SIMILAR HIGH-CUBE FULFILLMENT CENTER WAREHOUSE FACILITIES

The trip generation for Amazon or similar high-cube fulfillment center warehouse facilities may be developed either by using the rates included in this appendix or any other source approved by City staff. This memorandum provides a brief summary of the development of trip generation rates for Amazon type high-cube fulfillment center warehouse facilities using survey data:

SURVEY-BASED TRIP GENERATION RATES FOR AMAZON TYPE HIGH-CUBE FULFILLMENT CENTER WAREHOUSE FACILITIES

The following Amazon fulfillment center warehouse sites were surveyed to develop the trip generation rates for Amazon and similar fulfillment center warehouse facilities:

Serial No.	Traffic Count Site	Site Code	Function	Area (Square Feet)	Dock Doors	Trailer Parking (Not at Active Dock Doors)	Auto Parking
1	Rialto Building 5	LGB8	Receiving Center	614,848	144	360	995
2	Southgate - Project Infinity - Small Sortable	ONT2/ ONT3	ONT2 - AR Sort - Small Sortable & ONT3 - "Make On Demand Printing"- 2,000 employees ONT3	951,660	87	238	1,993
3	Southgate Building 4	ONT4/ ONT5/ ONT7	ONT4 - Amazon Fresh & ONT5 - Sortation Center for LA region & ONT7 - Amazon Pantry	514,603	113	676	142
4	Gateway South Building 3 - Small Sortable	SNA7/ SNA8	AR Sort - Small Sortable	1,102,360	97	222	1,062
5	Eastvale - Small Sortable	SNA6/ SNA9	AR Sort - Small Sortable	1,033,192	74	88	650

Serial No.	Traffic Count Site	Site Code	Function	Area (Square Feet)	Dock Doors	Trailer Parking (Not at Active Dock Doors)	Auto Parking
6	MV Fulfillment 6 - Small Sortable & Apparel Fulfillment Center - 3,000 employees	ONT6	AR Sort - Small Sortable & Apparel Fulfillment Center - 3,000 employees	1,250,000	94	240	2,541
7	MV Fulfillment 8	ONT8	Receiving - Inbound Cross Dock	769,320	118	219	334

Driveway survey counts were conducted for these facilities, following the methodology specified in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook*. Survey counts were conducted for three typical non-holiday weekdays during the months of September 2017 and May 2018. On each weekday, 15-minute class counts were conducted for the entire day at all the driveways for a site, and counts from all the driveways were added to obtain the total trip generation for the site. The following classes of vehicles were considered for the counts: Passenger Vehicles, Large 2-Axle Trucks, 3-Axle Trucks, and 4+ Axle Trucks. For each site, the trip generation for each 15-minute period was averaged out over the survey dates to obtain the average trip generation for the site. Further, the average trip generation for each period was added up for all the sites to obtain the combined trip generation for the seven sites. Finally, the a.m., p.m., and daily trip generation rates were obtained by dividing the combined trips for the seven sites by their total area (in thousand square feet (TSF)).

From this combined trip generation rate, the a.m. peak hour was identified as the 1-hour period between 7 a.m. and 9 a.m. that has the highest trip rate. As for the p.m. peak hour, it was observed from the survey data that the p.m. peak period continued beyond 6 p.m. Therefore, the p.m. peak hour was identified as the 1-hour period between 4 p.m. and 7 p.m. that has the highest trip rate. As such, the following peak hour and daily trip generation rates were obtained:

Trips/TSF	A.M. Peak Hour			P.M. Peak Hour			Daily
	In	Out	Total	In	Out	Total	
Passenger Vehicles	0.2367	0.0500	0.2867	0.3372	0.3150	0.6522	3.6671
2-Axle Trucks	0.0008	0.0008	0.0016	0.0002	0.0008	0.0010	0.1129
3-Axle Trucks	0.0022	0.0026	0.0048	0.0011	0.0021	0.0032	0.0977
4-Axle Trucks	0.0101	0.0072	0.0173	0.0063	0.0098	0.0161	0.3363
Total	0.2498	0.0606	0.3104	0.3448	0.3277	0.6725	4.2140

Notes: TSF = Thousand Square Feet

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